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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,936	02/19/2002	Mohsen Kavehrad	823.0116USU	6519

7590 05/17/2006

Paul D. Greeley, Esq.
Ohlandt, Greeley, Ruggiero & Perle, L.L.P.
10th Floor
One Landmark Square
Stamford, CT 06901-2682

EXAMINER	
PHAN, HANH	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/079,936	KAVEHRAD ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/03/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 03/03/2006.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Hinton et al (US Patent No. 5,195,103).

Regarding claims 1 and 12, referring to Figures 1-6, Allen discloses an infrared communications system comprising:

a multi-beam transmitter (i.e., transceiver 20 including a transmitter and a receiver, Figs. 1 and 2) for producing an array of diffusing spots (28, Fig. 1) upon a reflecting surface (i.e., ceiling of room 26, Figs. 1 and 2, col. 1, lines 34-65, col. 2, lines 65-67 and col. 3, lines 1-19); and

a receiver receives the reflected radiation from the reflecting surface (i.e., transceivers 22 and 24, each transceiver comprising a transmitter and a receiver which receives the reflected radiation, Fig. 1, col. 1, lines 61-67 and col. 2, lines 1-42 and lines 65-67 and col. 3, lines 1-35).

Allen differs from claims 1 and 12 in that he fails to teach a multi-beam transmitter that comprises a single light source and an optical structure that converts light from the single light source to a plurality of collimated beams and to project the beams as an array of diffusing spots and a receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots. However, Hinton in US Patent 5,195,103 teaches a multi-beam transmitter (12, Fig. 1) that comprises a single light source (12) and an optical structure (collimating lens 24) that converts light from the single light source to a plurality of collimated beams and to project the beams as an array of diffusing spots and a receiver (an array of photosensitive devices 28) comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots (Figure 1, col. 3, lines 12-52). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the multi-beam transmitter that comprises a single light source and an optical structure that converts light from the single light source to a plurality of collimated beams and to project the beams as an array of diffusing spots and the receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots as taught by Hinton in the system of Allen. One of ordinary skill in the art would have been motivated to do this since Hinton suggests in column 3, lines 12-52 that using such the multi-beam transmitter that comprises a single light source and an optical structure that converts light from the single light source to a

plurality of collimated beams and to project the beams as an array of diffusing spots and the receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots have advantage of allowing achieving greater field of view and looser alignment between communicating infrared ports, increasing the signal to noise ratio and ensuring the uninterrupted communication.

Regarding claims 2 and 13, Allen further teaches the reflecting surface is a ceiling of a room (Fig. 1).

Regarding claims 3, 4, 14 and 15, the combination of Allen and Hinton teaches the array is in the form of a regular grid (see Fig. 1 of Hinton).

Regarding claims 5 and 16, the combination of Allen and Hinton teaches the diffusing spots are approximately equidistantly positioned from one another (Fig. 1 of Hinton).

Regarding claim 6, the combination of Allen and Hinton teaches the optical structure comprises collimating optics, and a spot array generator (Fig. 1 of Hinton).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Hinton et al (US Patent No. 5,195,103) and further in view of Ford et al (US Patent No. 6,567,195).

Regarding claim 7, Allen as modified by Hinton teaches all the aspects of the claimed invention except fails to teach the spot array generator is a holographic optical element. However, Ford in US Patent No. 6,567,195 teaches the spot array generator is

a holographic optical element (Fig. 2A, col. 2, lines 55-64). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the spot array generator is a holographic optical element as taught by Ford in the system of Allen modified by Hinton. One of ordinary skill in the art would have been motivated to do this since Ford suggests in column 2, lines 55-64 that using such the spot array generator is a holographic optical element has advantage of allowing achieving greater field of view and looser alignment between communicating infrared ports, increasing the signal to noise ratio and ensuring the uninterrupted communication.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Hinton et al (US Patent No. 5,195,103) and further in view of Allen (US Patent No. 4,977,618).

Regarding claim 8, Allen as modified by Hinton teaches all the aspects of the claimed invention except fails to specifically teach the receiving element comprises a band-pass filter, a concentrator and a photodetector. However, Allen in US Patent No. 4,977,618 teaches receiving element comprises a band-pass filter (32), a concentrator (lens 28) and a photodetector (36)(Fig. 2, col. 3, lines 4-65) . Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiving element comprises a band-pass filter, a concentrator and a phtodetector as taught by Allen in the system of Allen modified by Hinton. One of ordinary skill in the art would have been motivated to do this since Allen suggests in

column 3, lines 4-65 and that using such the receiving element comprises a band-pass filter, a concentrator and a photodetector has advantage of allowing selecting the wanted signal and eliminating the unwanted signals and signal noise and focusing the optical beam.

6. Claims 9, 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Hinton et al (US Patent No. 5,195,103) and further in view of Gfeller et al (US Patent No. 6,424,442).

Regarding claims 9 and 17, Allen as modified by Hinton teaches all the aspects of the claimed invention except fails to teach each the receiving element is aimed in a different direction. However, Gfeller in US Patent No. 6,424,442 teaches an optical receiver comprising a plurality of receiving elements wherein each the receiving element is aimed in a different direction (Figs. 1-16, col. 7, lines 47-65 and see abstract section). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiver comprising a plurality of receiving elements and wherein each the receiving element is aimed in a different direction as taught by Gfeller in the system of Allen modified by Hinton. One of ordinary skill in the art would have been motivated to do this since Gfeller suggests in column 7, lines 47-65 and abstract section that using such the receiver comprising a plurality of receiving elements and wherein each receiving element is aimed in a different direction has advantage of allowing achieving greater field of view and looser alignment between communicating infrared ports.

Regarding claim 10, the combination of Allen, Hinton and Gfeller teaches the receiver is a multi-branch receiver (Fig. 1of Hinton and Figs. 1-14 of Gfeller).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Hinton et al (US Patent No. 5,195,103) and further in view of Jannson et al (US Patent No. 5,293,272).

Regarding claim 11, Allen as modified by Hinton teaches all the aspects of the claimed invention except fails to specifically teach the receiving element comprises a curved holographic mirror. However, Jannson in US Patent No. 5,293,272 teaches the receiving element comprises a curved holographic mirror (Figs. 3 and 19-22, col. 5, lines 3-20). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiving element comprises a curved holographic mirror as taught by Jannson in the system of Allen modified by Hinton. One of ordinary skill in the art would have been motivated to do this since Jannson suggests in column 5, lines 3-20 and that using such the receiving element comprises a curved holographic mirror has advantage of allowing reflecting and focusing the optical beam and reducing the signal noise.

Response to Arguments

8. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

HANH PHAN
PRIMARY EXAMINER

Approved
05/16/06
MP

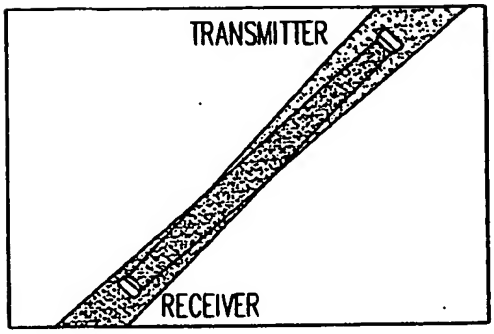

FIG. 1

PRIOR ART

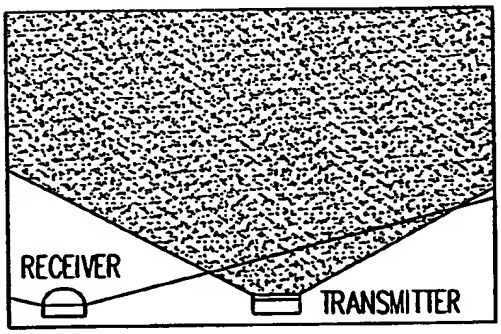

FIG. 2

PRIOR ART

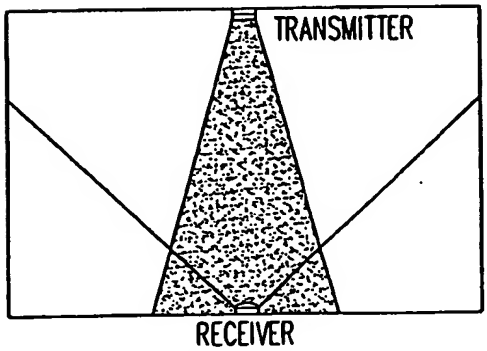

FIG. 3

PRIOR ART

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05/16/06
HP

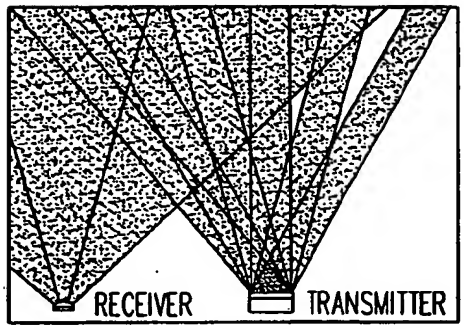

FIG. 4

PRIOR ART

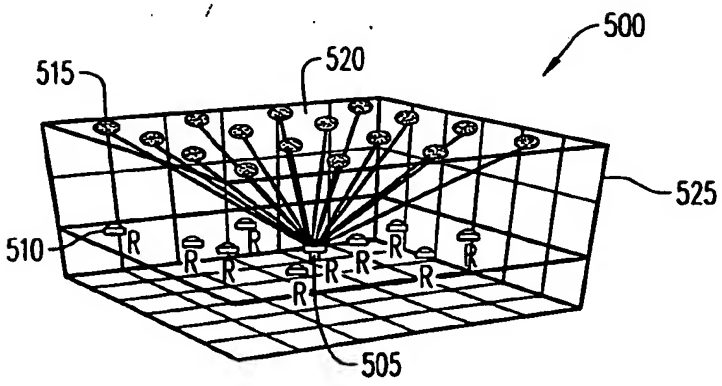

FIG. 5

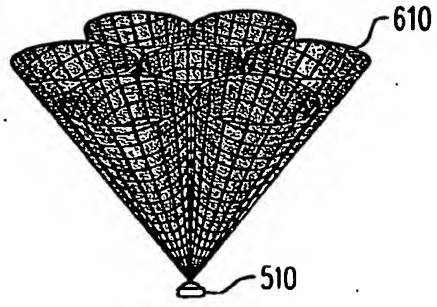

FIG. 6